

AD-A262 917



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I. Report Number: DOD POP HM TR/AYD 92-021

II. Title: Performance Oriented Packaging (POP) testing of M567 Front Body Assembly, M935 Front Body Assembly, and M935 Point Detonating Fuze (Less Booster) for 60mm, 81mm, and 120mm Mortar Packed in a Fiberboard Container

Drawing Number: 9272194

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Performing Activity: ARDEC

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Distribution Statement A.

Approved for public release; distribution is unlimited.



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1. Data:

Container:

Type: Box, Fiberboard
UN Code: 4G
Specification: PPP-B-636
Drawing Number: 9272194
Material: Fiberboard
Maximum net mass: 28 kg (61.5 lbs)
Dimensions: 56.4 cm X 28.7 cm X 21.8 cm
(22 3/16 in X 11 5/16 in X 8 9/16 in)
Gross Weight: 29.1 kg (64 lbs)

Products:

PTC QUARTER-ADVERTISED 4

Name: Body Assembly, Front, M567
Drawing Number: 9246241
Cage Code: 19200
United Nations Proper Shipping Name: Fuzes, Detonating
United Nations Identification Number: 0410
United Nations Packaging Group: II
Physical State: Solid
Number of Body Assemblies per Container: 100
National Stock Number (NSN): 1390-01-371-8299

Name: Body Assembly, Front, M935
Drawing Number: 9255261
Cage Code: 19200
United Nations Proper Shipping Name: Fuzes, Detonating
United Nations Identification Number: 0410
United Nations Packaging Group: II
Physical State: Solid
Number of Body Assemblies per Container: 100
National Stock Number (NSN): 1390-01-172-7776

Name: Fuze, Point Detonating, M935 (Less booster)
Drawing Number: 9255256
Cage Code: 19200
United Nations Proper Shipping Name: Fuzes, Detonating
United Nations Identification Number: 0410
United Nations Packaging Group: II
Physical State: Solid
Number of Fuzes per Container: 100
National Stock Number (NSN): 1390-01-245-8954

2. Reference Material:

- a. Federal Register, "49 CFR Part 107-179"
- b. United Nations, "Transport of Dangerous Goods"

3. Background:

This report details Performance Oriented Packaging (POP) tests performed on M935 Front Body Assembly packed in a fiberboard container in accordance with drawing 9272194. Each assembly weighs approximately 0.53 lb. The package contains 100 M935 front body assemblies. The POP tests were conducted using containers with additional weights to insure container integrity. The weight of the packed out tested container was 73 lbs (33 kg). Tests were performed in accordance with POP test regulations.

4. Test:

The following POP tests were performed at ambient temperature:

- a. Vibration Test (178.608)

Procedure:

Three fiberboard containers were vibrated on a vibrating platform unrestrained for a one hour period. The double-amplitude (peak-to-peak displacement) was one inch and the frequency was 300 cycles per minute. The frequency was sufficient to allow the package to become completely airborne and enable a 1/16" piece of strapping material to be slid underneath the package during vibration.

Results:

After the tests, the fiberboard containers experienced no structural damage; there was no spillage of contents; the passing criteria was met.

- b. Drop Test (178.603)

Procedure:

One of the packages that had been previously vibrated was reused for the five orientation drop tests: flat on the bottom, flat on the top, flat on the long side, flat on the short side, and on the corner. The height for all five drops was 4.0 ft (1.22 m).

Results:

There was no visible damage on the first four drops. On the fifth drop (on the corner), the impact corner received minor indentation. However, the container was still in a sound condition. All contents remained inside the container and the package was capable of being handled without danger of spillage. The container exceeded the passing criteria of CFR 49 which required one new container to be subjected one drop only.

c. Stacking Test (178.606)

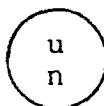
Procedure:

The fiberboard container that had been previously vibrated and dropped was reused for the stacking test. A dead load of 1,606 lbs was applied to the top of the container for a 24 hour period. This simulated a stack height of 16 ft (23 layers) of identical packages.

Results:

During the test, the container supported the load adequately. No structural damage was observed on the container after the test. The maximum compression of the container was 1/8 of an inch. The passing criteria was exceeded.

5. Based on the above POP testing, the following POP symbol has been applied to fiberboard containers in accordance with drawing 9272194.



4G/Y33/S/**
USA/DOD/AYD

** Insert the last two digits
of year packed.